Patent claims

1. A satellite transmission having an input element and an output element that can provide different transmission ratios by shifting into various concentric or eccentric positions and that include a ring (10) with an annular groove (12) and a star body (13) with radial grooves (14), and satellites (15, 35, 50) which are coupled to the ring (10) and that transmit torque to the star body (13) by means of coupling pins (21, 52), characterized in that in order to reduce or eliminate irregularities by varying the effective radius in a load zone, each satellite (15, 35, 50) has a radial slot (14, 51) in which can move the respective coupling pin (21, 51) when in the load zone at least relative to a center of the ring (10).

2. The satellite transmission according to claim 1, characterized by a radial groove (20, 51) whose length permits generally no movement of the coupling pin (21, 51) relative to a center of the star body (13).

3. The satellite transmission according to claim 1 or 2, characterized in that as a result of the relative geometric relationships and/or the coefficient of friction, the coupling pins in the grooves (14) of the star body move more easily in the slip zone, that is when moving through the load-free zone, than in the radial grooves (20) so that the sliding movement in the slip zone

takes place in the grooves (14) of the star body (13) and in the load zone in the grooves (20) of the satellites (15).

4. The satellite transmission according to one of claims 1 to 3, characterized in that the coupling pin (21) is of greater diameter in the groove (14) of the star body than in the radial groove (20) of the satellites.

5. The satellite transmission according to one of claims 3 or 4, characterized in that load flanks of the grooves (14) have greater sliding or rolling friction as a result of surface type and/or shape relative to the contact flanks of the coupling pin (21) or slide bodies carried by the coupling pin than the slip flanks and/or the grooves (20) or that oppositely the load flank has less resistance than the slip flank.

6. The satellite transmission according to one of claims 1 to 5, characterized in that the coupling pin (21) is spring biased in the slip zone into an end of the groove (20) so that much of the groove (20) is available for radial compensation in the load zone.

7. The satellite transmission according to one of claims 1 to 6, characterized in that one respective slide body is provided between the coupling pin (21) and the groove (14) and/or the groove (20) so as to convert the Hertz pressure into surface contact.

8. The satellite transmission according to one of claims 1 to 7, characterized in that the slide bodies have a shape or construction such that like locking bodies, rollers, or free-running clutches according to the load direction they slide or lock in the radial grooves so that the load-direction change is initiated on entry into the load zone from the groove (14) to the groove (20) and is reversed on leaving.

9. The satellite transmission according to one of claims 1 to 8, characterized in that the radial grooves (14) in the star disk (13) have a stop that sets a variable minimum radius for each transmission ratio and thus forces the coupling pin (21) to use the radial groove (20) on the satellite when in the load zone for geometric compensation.

10. The satellite transmission according to claim 9, characterized in that the radial guides are pivotal and that control of movement of the radial guides is effected by a groove (31) that is on a part whose position is fixed relative to the eccentric movement of the transmission control.

11. The satellite transmission according to one of claims 1 to 10, characterized in that the radial grooves are defined by guide elements (41) that are set up such that they can change the width of the radial groove according to the load directions of the coupling pins (52) that slide in the radial grooves.

12. The satellite transmission according to claim 11, characterized in that the radial grooves formed by the guide elements (41) can be narrowed so much that the coupling pins or the slide bodies connected with the coupling pins are clamped in the load zone and cannot move further radially.

13. A satellite transmission having an input element and an output element that can provide different transmission ratios by shifting into various concentric or eccentric positions and that include a ring (10) with an annular groove (12) and a star body (13) with radial grooves (14), and satellites (15, 35, 50) which are coupled to the ring (10) and that transmit torque to the star body (13) by means of coupling pins (21, 52), characterized in that the radial grooves (36) of the star disk (33) are not fixed on the disk but instead are formed by separate radial guides (35) that can move relative to the disk (33) to reduce or eliminate irregularities.

14. The satellite transmission ac one of claims 1 to 13, characterized in that the satellites (15) have teeth (17) that mesh in the load zone with complementary teeth (11) of the hollow ring disk (10), the satellite (15) pivoting when moving between the load zone and the slip zone.

15. The satellite transmission according to claim 14, characterized by satellites (15) shaped such that on transitioning from the slip zone into the load zone the torque is greater than

the torque that is the product of the frictional force (R) and the spacing (a) between the first teeth to mesh and the satellite axis.

16. A satellite transmission having an input element and an output element that can provide different transmission ratios by shifting into various concentric or eccentric positions and that include a ring (10) with an annular groove (12) and a star body (13) with radial grooves (14), and satellites (15, 35, 50) which are coupled to the ring (10) and that transmit torque to the star body (13) by means of coupling pins (21, 52), characterized in that the star body is formed by a support disk (63) with individually secured radial segments (62) that rotate about axes collinear to the drive axis so that they always lie in positions parallel to the support disk (63).

17. The satellite transmission according to claim 16, characterized in that the radial segments (62) are stabilized in their radial positions by springs and/or dampers.

18. The satellite transmission according to one of claims 16 and 17, characterized in that the coupling pin (19) of the satellite (15) fits snugly in the annular groove of the ring (19) and also fits snugly in the radial groove of the radial segment (62).

19. The satellite transmission according to one of claims 16 to 18, characterized in that the pivot axes of the radial

segments (62) lie on an edge line on the support disk (63) on which the satellites (15) ride when the ring (10) and the star body (62, 63) are concentric.

20. The satellite transmission according to one of claims 16 to 19, characterized in that the radial segments (62) are set in a guide of the coupling pin (19) that, when the ring (10) and the star body (62, 63) are eccentric, they are oriented at least generally in line with the center of the ring (10).